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EXAMINER

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ART UNIT PAPER NUMBER

2871

DATE MAILED: 01/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

The continuation information should be included at the beginning of the specification.

Appropriate correction is required.

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1, 10-14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tei et al., (Tei), JP 21001-124918 in view of Yojiro et al., (Yojiro), JP 06-301030.**

5. Tei discloses and shows in Fig. 5, a backlight used for a liquid crystal display device, comprising:

- a liquid crystal cell ;
- a bandpass filter; and
- a backlight (31) that uses three-wavelength emission type fluorescent lamp.

Tei differs from the claimed invention because he does not explicitly disclose that the bandpass filter selectively allows blue light having a center wavelength of 400-440 nm, green light having a center wavelength of 520-530 nm and red light having a center wavelength of 620-640 nm, respectively, to pass therethrough.

Yojiro discloses a liquid crystal display device equipped with a bandpass filter that transmits blue light having a center wavelength of 440-480 nm, green light having a center wavelength of 520-560 nm and red light having a center wavelength of 610-650 nm. He also discloses that such a filter raise color purity and thus raises the brightness of an image.

Yojiro is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use bandpass filter that transmits blue light having a center wavelength of 440-480 nm, green light having a center wavelength of 520-560 nm and red light having a center wavelength of 610-650 nm.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the device of Tei by using a bandpass filter that transmits blue light having a center wavelength of 440-480 nm, green light having a center wavelength of 520-560 nm and red light having a center wavelength of 610-650 nm for advantages such as improved image brightness, as per the teachings of Yojiro.

Accordingly, claims 1 and 16 would have been obvious.

As to claim 10, using a bandpass filter that comprises a multilayer lamination of resin films respectively having different refractive indexes is known in the art and thus would have been obvious to improve surface roughness.

As to claims 11-14, the multilayer lamination of the resin films being formed through film deposition or multilayer extrusion and then stretching are considered as product by process limitations and thus does not further limit the structure of the claimed bandpass filter. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985). Therefore, the process limitation does not have patentable weight. See MPEP 2113.

As to claim 17, employing a diffusing plate between the backlight and the liquid crystal cell to obtain uniform light distribution is known in the art and thus would have been obvious.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tie and Yojiro and further in view of Keiji et al., (Keiji), EP 0 864 905 A.

7. Tie when modified by Yojiro differ from the claimed invention because they do not explicitly disclose the claimed prism sheet.

Keiji discloses a backlight device equipped with a prism sheet used for a liquid crystal display device. He also discloses (col. 3, lines 10-13) that the use of prism sheet improve the light usage efficiency of the light source.

Keiji is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use a prism sheet.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to employ a prism sheet between the light source and the bandpass filter for advantages such as improved light usage efficient of the light source, as per the teachings of Keiji.

Accordingly, claim 2 would have been obvious.

8. Claims 3-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tei and Yojiro and further in view of Hikmet et al., (Hikmet), USPAT 6,307,604.

9. Tei when modified by Yojiro differ from the claimed invention because they do not explicitly disclose that the bandpass filter is formed by using cholesteric liquid crystal.

Hikmet discloses liquid crystal display devices equipped with bandpass filters that are formed using cholesteric liquid crystals. He also discloses using bandpass filter that is formed by laminating together cholesteric liquid crystal layers that respectively reflect circularly polarized light of the opposite circular polarizations. He further discloses that using a light source in conjunction with filters consists of at least one cholesteric liquid crystal layer provides low light losses (Col. 1, lines 25-27).

Hikmet is evidence that ordinary workers in the art would find a reason, suggestion or motivation to form bandpass filters using at least one cholesteric liquid crystal.

Therefore, it would have been obvious to one of ordinary skill in the art at the

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time of the invention was made to use bandpass filters that is made of at least one cholesteric liquid crystal for advantages such as low light loss, as per the teachings of Hikmet.

Accordingly, claims 3 and 8 would have been obvious.

As to claim 4, employing a reflection polarizer closed to the light source to increase the amount of light passing through the bandpass filter is known in the art and thus would have been obvious.

As to claims 5-7 and 9, even though Hikmet is silent about having a half wavelength plate between the cholesteric liquid crystal layers, it is known in the art to employ a half wavelength plate made of liquid crystal polymer between the cholesteric liquid crystal layers for making it possible to use cholesteric filters having all the same handedness and thus would have been obvious.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tei and Yojiro and further in view of Fukushima, USPAT 6,666,944.

11. Tei when modified by Yojiro differ from the claimed invention because they do not explicitly disclose that the bandpass filter comprises a multilayer lamination of dielectric films respectively having different refractive indexes.

Fukushima discloses (col. 2, lines 1-6; col. 4, lines 1-15) a bandpass filter comprising a multilayer lamination of dielectric films respectively having refractive indexes. He further discloses that such a filter realizes flat transmission characteristics and superior cutoff characteristic relative to adjacent bands.

Fukushima is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use bandpass filter that comprises a multilayer lamination of dielectric films respectively having different refractive indexes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use a bandpass filter that comprises a multilayer lamination of dielectric films respectively having different refractive indexes so that a filter having flat transmission characteristic and superior cutoff characteristic is obtained, as per the teachings of Fukushima.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

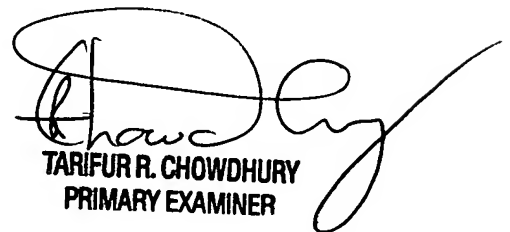
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R. Chowdhury whose telephone number is (571) 272-2287. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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TRC
January 18, 2006



TARIFUR R. CHOWDHURY
PRIMARY EXAMINER